California Health Policy and Data Advisory Commission
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Proposed Minutes
AB 524 Technical Advisory Committee
February 7, 2007

The meeting was called to order by Chairperson Jerry Royer at 10:00 a.m., in the HIRC Library, 818 K Street, Sacramento, California. A quorum (defined as 50 percent plus one) was in attendance.

Present:	Absent:
Jerry Royer, MD, MBA, Chair	Marilyn Chow, RN, DNSc
Douglas Bagley	Nancy Donaldson, RN, DNSc
Robert Brook, MD	David Hayes-Bautista, PhD
Laura Gardner, MD, MPH,	
Mark Hlatky, MD	
Kathy McCaffrey	
William S. Weil, MD	

Contractors:

Dr. Kirsten Bibbins-Domingo, University of California, San Francisco
Liz Goldman, MD, University of California, San Francisco
Celeste Prothro, University of California, San Francisco
Patrick Romano, MD, UC Davis Medical Center

CHPDAC Staff:

Kathleen Maestas, Acting Executive Director; Terrence Nolan, Office Manager

OSHPD Staff: Robert David, Chief Deputy Director; Elizabeth Wied, Chief Counsel; Joseph Parker, PhD, Director, Outcomes Center; Mary Tran, PhD, Manager, Administrative Data Programs; Victor Muu, Student Assistant; Michael Rodrian, Deputy Director, Healthcare Information Division; Jonathan Teague, Manager, Healthcare Information Resources Center; Candace Diamond, Manager, Patient Discharge Data Section; Starla Ledbetter, Patient Discharge Data Section; Susan Olsen, Patient Discharge Data Section; Brian Paciotti and Malika Rajapaksa, Healthcare Outcomes Center

Others Present: Vito Genna, Chairperson, CHPDAC; David Hopkins, Pacific Business Group on Health

Chairman's Report: Kathy McCaffrey has been appointed to the TAC for a second term, her first term being served as one of the original members when the TAC was formed in the early 1990's. Ms. McCaffrey will represent the California Health Information Association.

A request was made to provide Committee members with a copy of the Governor's health proposal. CHA has provided a good executive summary.

OSHPD Report: Chief Deputy Director Robert David reported that a couple of areas in the Governor's health reform proposal directly impacts OSHPD. As part of the quality and transparency area of health reform, there is additional focus on OSHPD's data programs and outcome studies, in keeping with the idea that patients need more information and need to be provided information to make good healthcare decisions.

The Facilities Development Division is in the process of again looking at approximately 1,000 hospital buildings that are at risk if there is a seismic event. A new computer program developed by the Federal Government called HAZUS looks more specifically at where a hospital building is located. Without impacting public health or safety negatively, some buildings may be pushed out of the 2020 or 2030 seismic safety deadline, thereby saving the healthcare system a significant amount of money.

OSHPD staff is currently housed in four different buildings in Sacramento, and is in the process of relocating. OSHPD has been working with Department of General Services to locate building space to consolidate the whole Office into one building. The anticipated moving date is July or August of 2007.

Approval of Minutes: A motion to approve the minutes of the July 27, 2006 was made, seconded and approved, with a correction on Page 2, second to last paragraph: UCI should be changed to ICU.

Status Report on Patient Discharge Data (PDD) Validation Contract: Liz Goldman, M.D., University of California, San Francisco

Dr. Goldman is working on the validation contract with Dr. Bindman, the Principal Investigator and Celeste Prothro. The team is working to validate the patient discharge data, focusing particularly on three data element areas: condition present at admission (CPAA), Do-Not-Resuscitate (DNR), and E-Codes for trauma.

OSHPD has developed risk-adjustment models for acute myocardial infarction (AMI), and community acquired pneumonia (CAP), among others. These models have shown that by utilizing the CPAA indicator, the models are

improved and are closer to models that include clinical data. Most states use models that don't incorporate CPAA coding.

California and New York, for the past ten years, have had a data element that documents whether or not a condition was present at the time of admission or occurred as a complication of care. There is a national mandate being pushed forward to incorporate the CPAA variable, even though there has not been broad validation of this variable. Current reimbursement is based on DRGs which reward hospitals having many complications the same as those hospitals with fewer complications.

OSHPD, as part of its community acquired pneumonia report, conducted an internal validation of CPAA in 1996 and noted there was much variability in its coding. Since that time, there has been much effort to improve the coding of both CPAA and DNR. Hospitals have an incentive to perhaps over-code conditions as being CPAA because they would be incorporated into the risk-adjustment models.

CPAA includes chronic conditions, acute conditions that are diagnosed at the time of admission by a physician, as well as conditions that have symptoms or an abnormal lab value at the time of admission, but are later diagnosed by a physician during the hospital stay.

OSHPD's definition of do-not-resuscitate (DNR) is a directive from the physician in the inpatient's medical record instructing that the patient not be resuscitated in case of cardiac or pulmonary arrest. Patients that have a DNR order within 24 hours have a higher associated mortality. There is also large variability in its use, even within similar patients and hospitals, such as academic facilities. Hospitals may have an incentive to game the system through over-reporting patients to be DNR.

E-Codes are used for patient trauma and include location of occurrence information. OSHPD is interested in how accurate the codes are, to be later used for other purposes such as public health assessments.

There will be abstracting from about 2,200 charts, 500 of which will be reabstracted by a second abstractor to enable inter-rater reliability testing. The charts will be taken from approximately 10 percent of hospitals in California.

Four umbrella conditions will be looked at: acute myocardial infarction (AMI), community acquired pneumonia (CAP) congestive heart failure (CHF), and percutaneous transluminal coronary angioplasty (PTCA). These conditions are high impact and common conditions. Two risk factors were selected as a focus for each of these conditions. A literature search was conducted to find risk factors that met three criteria: (1) all are acute conditions; (2) all conditions strongly predicted mortality for the umbrella condition they were tied to, and (3) they may both be risk factors for the condition or complications resulting from treatment of the umbrella condition.

A sampling strategy was designed to sample medical records that have a combination of both the umbrella condition, which would be the primary diagnosis, and one of the two risk factors, which would be the secondary diagnosis.

The main purpose of the study is to compare the abstraction completed using 2005 data with the data originally submitted by hospitals and calculate agreement statistics. The focus will center on the eight factors that were selected. It is planned to have a registered nurse actually do the assessment that would have a different level of clinical skill than that of the coders. Dr. Brook and Dr. Hlatky thought physician specialists such as cardiologists and pulmonologists should be involved in order to determine if the condition was present on admission or only developed after hospitalization. The specialists might want to look at the entire chart for a certain number of charts. Dr. Parker said this will be discussed further because the study has not yet begun.

The sampling is being weighted in order to obtain an adequate number of DNR positive charts, as well as selecting about 250 charts at hospitals for E-Codes. No hospitals are excluded for reasons of size or location.

There will be in-person training sessions with all participating abstractors, with pilot testing prior to the statewide abstraction. Training will be conducted by UCSF and contractors who are coding experts, with OSHPD staff in attendance. There will be more than one person evaluating the test records that are part of the training process. The suggestion of having an oversight by a physician will be brought up for discussion with UCSF.

The project began in July 2006, creating the sampling scheme and developing the data abstraction tool. It is planned to have the abstractor training in March and then proceed with the chart abstractions. The analysis period will be approximately August 2007, with a report in December 2007.

Dr. Brook and Dr. Hlatky suggested that the best use of the TAC members' collective expertise would be to hear about a project in the earliest planning stages in order for the TAC to offer suggestions on how best to design it.

Presentation/Recommendations for AMI Risk Model: Kirsten Bibbins-Domingo, MD, PhD

The outcome projects and public report card compare hospital outcomes for selected conditions within California to encourage quality improvement and to give credit to hospitals that are leaders in providing high quality care. The primary audience is the clinical institutions, although the information is also important to insurers, employers, and consumers when making healthcare decisions.

AMI was the first outcome for which reports were issued. Over 40,000 patients in California are admitted to approximately 400 hospitals yearly. There are more than 5,000 deaths in a single year. AMI was chosen because it is important, common, has high mortality, and improving care results in improved outcomes. OSHPD has issued reports on AMI for several years, and the model used has not been updated during this time.

The strength of the OSHPD AMI report is that it is risk adjusted; therefore, the types of patients at different hospitals do not negatively impact that hospital's outcome. The OSHPD data are linked with Vital Statistics and take into account deaths that occur outside of the hospital. In 1996, the AMI model was validated and 1,000 charts were examined for different variables and coding.

The OSHPD AMI report looks at 30-day mortality and not just in-hospital mortality. Thus it includes premature inappropriate discharges and includes all hospitals.

The rationale for revising the AMI model: There has been no major revision in the risk-adjusted model since 1993. There were other models published over this time period that were available for comparison. The new data elements collected, CPAA and DNR, could improve the model.

The contract with UCSF was to make recommendations for how the AMI model might be revised. The literature on AMI risk-adjusted models was reviewed. Some preliminary models were developed with some internal validation of CPAA and DNR. There was input from clinicians and experts in the field of risk adjustment and the performance of a final model based on these various inputs was evaluated.

Key findings were: Comparison with other similar risk adjustment models suggests that a focus upon acute risk factors yields similar prevalence rates. Acute risk factors are important because they are assessed directly by the physician taking care of the patient. The focus on acute risk factors is compatible with models that are using complete clinical-based risk factors.

It is hoped that CPAA would allow acute risk factors to be distinguished from complications. Complications might have occurred because of poor quality of care and should not be included in the risk-adjustment model.

CPAA might allow for more accurate identification of risk factors to include in the model and elimination of complications from the analysis. OSHPD has been aware that complications might be inappropriately adjusted for these types of risk adjustment models. Some prior OSHPD models included risk factors that were likely complications. The AMI reports contained two models that made interpretations difficult because the ranking of hospitals could be different based on which model was being used.

The contractors looked at the face validity of the coding of CPAA and took conditions known to be chronic and unlikely to be diagnosed to determine the frequency with which this was coded as CPAA for an AMI admission. Over 95 percent of the time chronic diagnoses were coded as CPAA="yes", suggesting internal validity.

Also, factors known to be complications in the CABG model were used that would not have been present on admission and clearly developed during the hospitalization. The CPAA coding was lower for these. There are certain conditions that could be both, but the ultimate validation will require some chart review.

There was interest in using a simpler model that contained a smaller number of variables. A finding was that compared with the original model, a smaller model is able to perform similarly with fewer variables.

Risk factors were selected based on evidence from literature and other published AMI models. The variables were presented to a group of experts in risk adjustment for input. The final model had very good predictive power. There was also concern about over fitting and this was presented to experts. It was found that in the smaller revised model results, most of the hospitals remained in their original performance category, compared with the larger model results.

Dr. Brook asked whether this work has increased or decreased the ability to identify either good or bad hospitals. Dr. Parker replied that we still end up with about the same amount of hospitals, probably on the upper and the bottom end. It is the same results with the pneumonia report, because confidence intervals are the same. The contractor suggested that using the hierarchical modeling approach may allow inclusion of more hospitals and provide more confidence in the smaller hospital results.

DNR is important because models, in general, do not really incorporate a measure of patient preference. This is also probably captures something about a patient's severity of illness and co-morbidity that might not be captured by the specific variables included. DNR requires validation.

All of the interventions for AMI should happen very quickly, and the reason why timing of DNR, particularly for AMI, is important. The researchers wanted to look at how DNR and hospital's coding practices of DNR affected the AMI model.

It was found that the hospital's DNR characteristics were independent of the DNR codes of the individual patients. There was not much correlation between the two. There was concern that hospitals might actually game the system. It was found that this was not the case. Patients were not more likely to die in those hospitals that had high DNR rates. About 10 percent of the hospitals would have been re-categorized either to a higher category or to a lower

category, depending on whether DNR was included in a model. There are things about hospital practices that are important. It is not masking poor quality of care, but the hospital's overall practice in coding DNR affects what is happening with the DNR when inserted into the model. It is important for this variable that a chart validation study be done, both for the timing and other clinical factors surrounding the designation of the DNR.

The TAC previously discussed the community acquired pneumonia report in depth, and decided to have two different models, one with and one without DNR. If a hospital was labeled as an outlier on both models, only then was it considered a true outlier. This is also suggested for the AMI model at this time. Dr. Hlatky suggested considering it as a hospital variable in hierarchical model rather than an individual variable. Dr. Bibbins-Domingo said this was an easy question to address and was an important point. It is valid to question the place of DNR in a patient level risk model since it is not a directly measured clinical risk.

The American Heart Association published a standard for risk adjustment models at the same time this report was being completed. It was useful to measure OSHPD's model against these criteria. The AHA's preferred attributes for public outcomes reporting were that: (1) There should be clear and explicit definition of an appropriate patient sample. (2) There is sufficiently high quality and timely data. (3) Designation of an appropriate reference time before which co-variants are derived and after which outcomes are measured. (4) Use of appropriate outcomes and a standardized period of outcome assessment. (5) Application of an analytic approach that takes into account multi-level organization of the data. (6) Disclosure of measurements used to figure outcomes, including disclosure of performance of risk adjusted methodology in derivation of validation samples.

Many of those characteristics are already met by OSHPD's reporting. The analytic approaches that take into account the model to level organization of the data calls for using hierarchical models.

The contractor's recommendations are:

- The revised model should focus on acute risk factors making use of the CPAA variable, based on the internal validation of this variable.

- The model should be parsimonious to allow for ease of interpretation and attempt to include patient preference among the risk adjusters, with particular attention to DNR.

- Based on findings of case validity of the CPAA field, it was recommended including this information contained in this field to select acute factors for the model, but also that a chart review be conducted to further validate the data contained in this field.

- DNR is an important variable that should be considered and has an important influence on the types of outcomes and the categorization of hospitals. There are clearly hospital factors that influence coding of DNR and suggest for now, in the absence of hierarchical models, to report both with and without DNR.

- All the revisions should be guided by the standards suggested by AHA. The types of things addressed were choosing variable based on clinical coherence and the timing. It was strongly urged that OSHPD consider how to adopt hierarchical models and account for the clustering of data at the hospital level to minimize those types of factors.

Mr. Hopkins of the Pacific Business Group on Health suggested now that there has been a national standard adopted by the National Quality Forum for risk-adjusted AMI mortality, based on hierarchical risk adjustment, that it might be appropriate for OSHPD to look at that and either demonstrate that the California model is better or, if not, adopt the national standard.

Dr. Parker said they planned on looking at the model published by Krumholz for comparison. It was thought the reason OSHPD's AMI model may be a better predictor was that it includes CPAA, whereas the Krumholz model does not include CPAA, only taking into consideration chronic conditions. Most states do not have the CPAA data element. A Congestive Heart Failure model will be developed by OSHPD, which will include an evaluation of the Krumholz NQF adopted CHF model.

Presentation on Maternal Outcomes Project: Patrick Romano, MD, MPH

At the last TAC meeting, three questions came up. The first is the issue of the volume-outcome relationship for obstetric care. It was pointed out that there is huge variation in volume in obstetric services in California.

The readmissions analysis is not well suited for looking at small hospitals because readmission is such a rare event. It was suggested not reporting specific P-values, or confidence levels, for those low-volume hospitals. Are those low-volume hospitals different? Are they providing worst care in aggregate? This was explored.

There are two different measures of hospital performance related to obstetric care, readmissions and perineal lacerations. There was concern expressed about the correlation between these two measures. Are these both measures of the same underlying construct of health care quality, or are they completely orthogonal measures?

There was discussion about bias due to choice of mode of delivery. Perhaps hospitals could decide individually to improve their laceration rates by performing more cesareans instead of vaginal deliveries. Perhaps hospitals could improve their readmission rates by manipulating cesarean rates either

upward or downward, depending on how the analysis is done. This question was explored further. Looking at hospitals which are being flagged as outliers, the bad outliers show a mix of hospitals of different sizes, whereas the good outliers are all large hospitals. When looking at outcomes, a hospital that has a volume of less than 30 should not have the confidence level test performed on them because of the power problems.

Dr. Romano then presented charts showing sample sizes needed to flag a hospital with zero lacerations as a low outlier, readmissions, correlations between hospital delivery volume and outcome rates, etc.

Conclusions:

- Higher-volume hospitals have higher crude laceration rates than lower-volume hospitals, but this is entirely due to differences in risk.

- Laceration rates and postpartum maternal readmission rates are weakly correlated at the hospital level, especially after risk-adjustment.

- Only one hospital is classified in opposite ways on the two outcome measures.

- Hospital-level associations between cesarean rates and outcome rates are weak and inconsistent.

Mr. Hopkins commented that this raises issues about whether focusing on geography can meet the consumer's need. Very few persons will travel very far for obstetrical care.

The maternal outcomes report could possibly be released at the end of 2007. Dr. Romano said that the data used in this presentation will not be included in the new public report, but will be more recent.

Dr. Brook thought if there are areas that are unsafe, the State has a responsibility, through its public health mandate, to make consumers aware of this.

Expansion of Patient Level Data: Joseph Parker, PhD, Manager, Healthcare Outcomes Center

OSHPD contracted with Dr. Bindman, University of California, and San Francisco, to analyze and recommend potential data elements to add to the patient discharge data. In this analysis, Dr. Bindman reviewed previous work done by Jennifer Haas and others. Some of the preliminary findings have been presented to CHPDAC and its committees, including the TAC.

To date, there has been limited reaction from the stakeholders, except that OSHPD needs good business arguments and plans for using this data if it is to

be collected. OSHPD said it needed to follow up with verification and validation and to focus on data elements that are available in an automated format. There was a need to prioritize the recommendations. OSHPD is now making plans for engaging hospitals and other stakeholders in this process. There are things happening on the national scene and OSHPD wants to be in sync with national standards and possible revisions to its internal data systems.

Lab values are available for approximately 90 percent of California hospitals in an automated format along with patient-identifying information and will be considered first. Geo-coded patient address is also a priority. Vital signs are not available in a standardized format by the hospitals but should be considered at the same time as lab values.

The reason to focus on lab values is that legislation directs OSHPD to enhance risk adjustment methods for outcome studies. There are also nationally standardized reporting formats. There is a clear national direction and policies to promote the reporting of these values. There are studies and literature providing evidence of incremental value of adding lab data.

Admission labs will be used as risk adjusters so should be collected early in the hospitalization, with a definition of where and when that collection of data would occur. This would be only for patients where lab work was done. It is not intended to drive the practice of medicine towards greater collection of lab values.

There has been some discussion about how to interpret the 15 data elements limit. The outcome of that discussion was that the law was vague enough so that OSHPD could collect more data of certain diagnoses and should not collect data on conditions where no outcome report would be developed.

This study is relevant to which data elements would give the best value for the money, for conditions and procedures that OSHPD might be interested in doing risk models on.

AHRQ contracted with Michael Pine & Associates for a study using Pennsylvania data. Pennsylvania has both basic administrative data and very detailed key clinical findings data along with the basic labs. There were six patient cohorts selected. In terms of patient safety indicators (complication measures), they looked at metabolic derangement, respiratory failure, pulmonary embolism, deep vein thrombosis and Sepsis. In this study, seven risk models were created and they tried to understand the value of the added information. Dr. Bindman suggested OSHPD should wait for the results of this study before making any decisions.

Another finding in the report is that adding a limited set of lab values to a model that already includes CPAA increased the model performance sufficiently to support risk stratification of surgical mortality and post-operative complications.

The admission vital signs were relatively unimportant risk predictors after the lab values were added. Dr. Brook added that there are very few deaths in surgery for persons under 65; about 90 percent are for persons over 95.

Dr. Bagley asked if OSHPD knows which studies it will develop to use this additional information. Dr. Parker said there are some studies on the immediate horizon and other studies further out. There is interest in current reports such as AMI, pneumonia, and CHF. There is interest in stroke. It was suggested that a list of studies be developed which OSHPD could do over the next five years and order them by priority and chronologically. From that list, look at the existing body of knowledge and research and select the studies from recommendations as to the most relevant data elements needed to conduct the studies.

There was some frustration expressed about the infrequency of meetings during the past few years, and that OSHPD should be using the expertise of the TAC in a helpful way so as not to hold up studies, working toward a specific goal. Perhaps a few of the data items could be agreed upon and more could be added at a later date. Dr. Parker said there are several bodies that have input into the studies and all views are considered.

Regulations would need to be developed and changes made to the collection system before there could be any changes to the patient discharge data.

A motion was made by Dr. Weil to adopt a combination of Bindman and Pine's suggestions for laboratory tests, excluding blood gas, systolic blood pressure, and oxygen saturation because they are already covered (Pro time, SGOT, sodium, potassium, p02, pC02, BUN or creatinine, platelet count, hemoglobin and white blood cell). The motion was seconded and tabled. It was thought that the TAC was not in a position to make a decision until a more complete discussion could be held on the Bindman and Pine data elements.

It was suggested that there be a draft of proposed recommendations, identifying the reasons for their inclusion or exclusion.

The meeting adjourned at 2:10 p.m.

Pending:

1. Distribute copy of Executive Summary of Governor's health proposal to TAC members.

2. Discussion of oversight of the reabstracting by a physician/cardiologist.

3. Send AMI recommendations to TAC members.

4. List studies currently being done and ones that are planned in the near future.

5. Make a short list of data items, reasons for inclusion or exclusion, to begin a discussion.